

REMARKS

Claims 1, 3, and 5-10 are pending in the application. Claim 4 is canceled without prejudice or disclaimer of the subject matter thereof.

Reconsideration of the rejection and allowance of the pending application in view of the foregoing amendments and following remarks are respectfully requested.

In the Office Action, claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Choi, Korean Patent Application No. 10-2003-0066151 in view of Weeks, U.S. Patent No. 4,842,287. This rejection is respectfully traversed.

A stirling cooler of a present embodiment recited in claim 1 includes, inter alia, a case provided with a cold tip at an end thereof, a cylinder fixedly installed in the case and provided with a piston reciprocating therein, a displacer installed in the piston such that the displacer can reciprocate, a regenerator positioned between the displacer and the cold tip, a heat exchanger connected to the regenerator and the cylinder, the heat exchanger including an inner heat exchanger installed in a heat exchange chamber positioned between the cylinder and the case, and an outer heat exchanger installed on an outer surface of the case opposite to the inner heat exchanger, and a packing positioned at an area in which the cylinder contacts the case. Further the packing is interposed between a flange that protrudes from an outer surface of the cylinder and a stair of the case on which the flange is seated in a radial direction of the cylinder, and an O-ring is installed at a portion of the cylinder contacting the case in an axial direction of the cylinder.

Applicant respectfully submits that the references relied upon in the rejection under 35U.S.C. 103(a), considered singly or in any proper combination, do not disclose

such a combination of features. In particular, the combination of the packing interposed between a flange that protrudes from an outer surface of the cylinder and a stair of the case on which the flange is seated in a radial direction of the cylinder and the O-ring installed at a portion of the cylinder contacting the case in an axial direction of the cylinder as recited in amended claim 1 is not taught or suggested by either of the applied references.

The Examiner has indicated that Choi does not disclose a packing. However, the Examiner asserts that the rejection of claim 1 relies on the well-known fact (taught by Weeks) that gaskets are commonly employed in Stirling refrigerators between mating surfaces, such as the bolted flange of Hhoi, for the purpose of enhancing the seal of the mating surface. With regard to the rejection of claim 4, the Examiner appears to further assert that the O-ring installed at a portion of the cylinder contacting the case in an axial direction of the cylinder is disclosed in the O-ring 156 of Choi.

However, Applicant respectfully submits that, although Weeks disclose "The most common seals used in pressurized devices are O-rings and gaskets composed of elastomeric compounds. These seals are generally positioned within mating grooves in adjacent parts." (Column 1, lines 16-24), Weeks does not disclose or teach a packing 70 positioned at an area in which the cylinder 53 contacts the case 50 and interposed between a flange 55 protruding from an outer surface of the cylinder 53 and a stair of the case 50 on which the flange 55 is seated in a radial direction of the cylinder 53, as recited in amended claim 1. Further, Weeks also does not disclose the O-ring 74 installed at a portion of the cylinder 54 contacting the case 50 in an axial direction of the cylinder 53.

On the contrary, in the presently claimed embodiment, the packing 70 is positioned in the radial direction of the cylinder 54 and the O-ring 72 is positioned in the axial direction of the cylinder 54, and thus an impact of the radial direction of the cylinder 54 is absorbed through the packing 70 while an impact of the axial direction of the cylinder 54 is absorbed through the O-ring 72.

Therefore, even assuming, arguendo, that the teachings of Choi and Weeks can be properly combined, the asserted combination of Choi and Weeks would not result in the invention as recited in amended independent claim 1. Thus, the rejection of claims 1 and 3-10 under 35 U.S.C. §103 (a) is now moot.

Independent claim 1 is now in condition for allowance in view of the amendments and the above-noted remarks. Dependent claims 3, and 5-10 are also submitted to be in condition for allowance in view of their dependence from the allowable base claims and also at least based upon their recitations of additional features of the present invention. It is respectfully requested, therefore, that the rejection under 35 U.S.C. 103(a) be withdrawn and that an early indication of the allowance thereof be given.

Applicant notes that since this amendment is being filed subsequent to final rejection and entry thereof is not a matter of right. Nevertheless, the amendment is made merely to incorporate previous dependent claim 4 into claim 1, and no new issue or further search would be necessitated thereby. Thus, entry is proper and is respectfully requested.


Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based on prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel

should be deemed to be attached thereto.

Based on the above, it is respectfully submitted that this application is now in condition for allowance, and a Notice of Allowance is respectfully requested.

Should the Examiner have any questions or comments regarding this response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
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